January 13, 2003

RE: Bulldog Battery Corporation 169-11223-00049

TO: Interested Parties / Applicant

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4 (d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, IN 46204, **within (18) eighteen days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) the date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for consideration at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosure

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Frank O'Bannon
Governor

Lori F. Kaplan
Commissioner

100 North Senate Avenue
P. O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.state.in.us/idem

January 13, 2003

Mr. Norman L. Benjamin
Bulldog Battery Corporation
387 South Wabash Street
Wabash, Indiana 46992

Dear Mr. Benjamin:

Re: Registered Construction and Operation Status,
169-11223-00049

The application from Bulldog Battery Corporation, received on August 9, 1999, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following lead battery manufacturing facility, to be located at 387 South Wabash Street, Wabash, Indiana 46992, is classified as registered:

One (1) lead battery manufacturing process, constructed in September 1997, with a maximum capacity of 8.25 batteries per hour, consisting of the following processes:

(a) One (1) bulk lead oxide pneumatic unloading process, with a maximum capacity of 48,000 pounds of lead oxide per hour, with emissions controlled by baghouses 1 and 2 and also by a cartridge style dust collector with HEPA filters, and exhausting to stack DC2. These controls are considered integral to the process;

(b) One (1) grid part casting process, with a maximum capacity of 1.12 tons of hard lead per hour. The casting process includes two (2) natural gas-fired lead melting pots, identified as 10006 and 10007, each having a maximum heat input rate of 1.8 million (MM)Btu per hour, exhausting to stacks S-1;

(c) One (1) paste mixing process with a maximum capacity of 10,000 pounds of lead and lead oxide per hour, with emissions controlled by a cartridge filter/HEPA filter system, and exhausting to stack DC2;

(d) One (1) natural gas-fired plate drying oven, identified as 10064, with a maximum heat input rate of 1.6 MMBtu per hour, exhausting to the ambient air;

(e) One (1) 3-step cell assembly process, with a maximum capacity of 5000 pounds per hour, with emissions controlled by baghouse 3 and also by a cartridge style dust collector with HEPA filters, and exhausting to stack DC1;

(f) One (1) wet formation/cell development process, with a maximum capacity of 5000 pounds per hour;

(g) One (1) small parts casting process, with a maximum capacity of 12.5 pounds per hour of hard lead, with emissions uncontrolled and exhausting to stack S-2;

(1) One (1) natural gas-fired lead melting pot, identified as 10008, with a maximum melting capacity of 3,000 pounds and a maximum heat input rate of 0.5 MMBtu per hour, exhausting to the ambient air;

(2) One (1) natural gas-fired lead melting pot, identified as 10088, with a maximum melting capacity of 500 pounds and a maximum heat input rate of 0.1 MMBtu per hour, exhausting to the ambient air;

(h) One (1) hardware assembly process, with a maximum capacity of 8.25 batteries per hour.

(i) Five (5) natural gas-fired, infra-red heaters, identified as HU1 through HU5, each with a maximum heat input rate of 0.075 MMBtu per hour, exhausting to the ambient air;

(j) Two (2) natural gas-fired furnace air make-up units, identified as HU6 and HU7, each with a maximum heat input rate of 0.6 MMBtu per hour, exhausting to the ambient air;

(k) Five (5) natural gas-fired warehouse furnaces, identified as HU8 through HU13, each with a maximum heat input rate of 0.2 MMBtu per hour, exhausting to the ambient air;

The following conditions shall be applicable:

(a) Pursuant to 326 IAC 12, New Source Performance Standard (40 CFR 60.370-60.374, Subpart KK), the following conditions shall apply:

(1) The Permittee shall not cause to be discharged into the atmosphere:

(A) From the grid casting processes, identified as 10006, 10007, 10008, and 10088, any gases that contain lead in excess of 0.40 milligram of lead per dry standard cubic meter of exhaust (0.000175 gr/dscf);

(B) From the paste mixing process exhausting to stack DC2, the bulk lead oxide unloading process exhausting to stack DC2, and the plate drying oven identified as 10064, any gases that contain in excess of 1.00 milligram of lead per dry standard cubic meter of exhaust (0.000437 gr/dscf). The paste mixing process includes lead oxide storage, conveying, weighing, metering and charging operations; paste blending, handling, and cooling operations, and plate pasting, takeoff, coding, and drying operations;

(C) From the 3-step cell assembly process that exhausts to stack DC1 any gases that contain in excess of 1.00 milligram of lead per dry standard cubic meter of exhaust (0.000437 gr/dscf);

(2) When two or more facilities at the same plant (except the lead oxide manufacturing facility) are ducted to a common control device, an equivalent standard for the total exhaust from the commonly controlled facilities shall be determined as follows:

$$S_e = \sum_{a=1}^{N} S_a \, (Qsd_a/Qsd_T)$$

Where:

S_e = is the equivalent standard for the total exhaust stream.

S_a = is the actual standard for each exhaust stream ducted to the control device.
N = is the total number of exhaust streams ducted to the control device.
Qsd_a = is the dry standard volumetric flow rate of the effluent gas stream from each facility ducted to the control device.
Qsd_T = is the total dry standard volumetric flow rate of all effluent gas streams ducted to the control device.

(3) The Permittee shall install, calibrate, maintain, and operate a monitoring device that measures and records the pressure drop across the cartridge style dust collector and HEPA filter system at least once per operating shift. The monitoring device shall have an accuracy of plus or minus 5 percent over its operating range.

(4) In conducting the performance tests required by this NSPS, the Permittee shall use as reference methods and procedures the test methods in appendix A of 40 CFR Part 60.

(5) The Permittee shall determine compliance with the lead standards in (a)(1), by using Method 12 to determine the lead concentration and, if applicable, the volumetric flow rate (Qsd_a) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf). The Permittee shall perform testing within 180 days of issuance of this permit. This test shall be repeated at least once every two and half (2.5) years from the date of the last valid compliance demonstration.

(6) Method 9 and the procedures in 40 CFR Part 60.11 shall be used to determine opacity. The opacity numbers shall be rounded off to the nearest whole percentage.

(b) Pursuant to 326 IAC 5-1-2 (Opacity), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period, as determined in 326 IAC 5-1-4.

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute overlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

(c) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the bulk lead oxide unloading process shall not exceed 34.5 pounds per hour when operating at a process weight rate of 48,000 pounds per hour. The baghouses shall be in operation at all times the bulk lead oxide unloading process is in operation as they are considered integral to the process.

(d) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the grid casting process shall not exceed 4.4 pounds per hour when operating at a process weight rate of 2,240 pounds per hour.

(e) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the paste mixing, flash dryer, and

positive plate wrapping processes shall not exceed 12.1 pounds per hour when operating at a process weight rate of 10,000 pounds per hour.

(f) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the three-step cell assembly process shall not exceed 7.6 pounds per hour when operating at a process weight rate of 5,000 pounds per hour.

(g) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the small parts casting process shall not exceed 0.14 pounds per hour when operating at a process weight rate of 12.5 pounds per hour.

(h) Pursuant to 40 CFR 60, Subpart KK (326 IAC 12), the maximum allowable operating rates for the grid casting operation and the small parts casting operation shall not exceed 2,240 pounds per hour and 12.5 pounds per hour, respectively. The Permittee may request that IDEM, OAQ increase the maximum allowable operating limits for these processes by providing stack test results that demonstrate compliance with 40 CFR 60, Subpart KK at a higher operating rate.

(i) The Permittee shall conduct a performance test for lead emissions every two and a half years to demonstrate compliance with applicable lead emissions standards. This test shall be performed 2.5 years after the last stack test.

This registration supersedes the previous exemption 169-9763-00049 issued to this source on March 2, 1999. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to (326 IAC 2-5.5-4(a)(3)). The annual notice shall be submitted to:

Compliance Data Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Pursuant to Contract No. A305-0-00-36, IDEM, OAQ has assigned the processing of this application to Eastern Research Group, Inc., (ERG). Therefore, questions should be directed to Ms. Alicia Baker, ERG, 1600 Perimeter Park Drive, Morrisville, North Carolina 27560, or call (919) 468-7902 to speak directly to Ms. Baker. Questions may also be directed to Duane Van Laningham at IDEM, OAQ,

100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call (800) 451-6027, press 0 and ask for Duane Van Laningham, or extension 3-6878, or dial (317) 233-6878.

Sincerely,

Original Signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

ERG/AR

cc: File - Wabash County
Wabash County Health Department
Air Compliance - Ryan Hillman
Permit Tracking - Sara Cloe
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak
Air Toxics Program Development Section - Mike Brooks

Registration
Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

Company Name:	**Bulldog Battery Corporation**
Address:	**387 South Wabash Street**
City:	**Wabash, Indiana 46992**
Authorized individual:	**Norman Benjamin**
Phone #:	**219-563-0551**
Registration #:	**169-11223-00049**

I hereby certify that Bulldog Battery Corporation is still in operation and is in compliance with the requirements of Registration 169-11223-00049.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name: Bulldog Battery Corporation
Source Location: 387 South Wabash Street, Wabash, Indiana 46992
County: Wabash
SIC Code: 3691
Operation Permit No.: 169-11223-00049
Permit Reviewer: ERG/ARB

The Office of Air Quality (OAQ) has reviewed an application from Bulldog Battery Corporation relating to the operation of a lead battery manufacturing facility.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

One (1) lead battery manufacturing process, constructed in September 1997, with a maximum capacity of 8.25 batteries per hour, consisting of the following processes:

(a) One (1) bulk lead oxide pneumatic unloading process, with a maximum capacity of 48,000 pounds of lead oxide per hour, with emissions controlled by baghouses 1 and 2 and also by a cartridge style dust collector with HEPA filters, and exhausting to stack DC2. These controls are considered integral to the process;

(b) One (1) grid part casting process, with a maximum capacity of 1.12 tons of hard lead per hour. The casting process includes two (2) natural gas-fired lead melting pots, identified as 10006 and 10007, each having a maximum heat input rate of 1.8 million (MM)Btu per hour, exhausting to stacks S-1;

(c) One (1) paste mixing process with a maximum capacity of 10,000 pounds of lead and lead oxide per hour, with emissions controlled by a cartridge filter/HEPA filter system, and exhausting to stack DC2;

(d) One (1) natural gas-fired plate drying oven, identified as 10064, with a maximum heat input rate of 1.6 MMBtu per hour, exhausting to the ambient air;

(e) One (1) 3-step cell assembly process, with a maximum capacity of 5000 pounds per hour, with emissions controlled by baghouse 3 and also by a cartridge style dust collector with HEPA filters, and exhausting to stack DC1;

(f) One (1) wet formation/cell development process, with a maximum capacity of 5000 pounds per hour;

(g) One (1) small parts casting process, with a maximum capacity of 12.5 pounds per hour of hard lead, with emissions uncontrolled and exhausting to stack S-2;

(i) One (1) natural gas-fired lead melting pot, identified as 10008, with a maximum melting capacity of 3,000 pounds and a maximum heat input rate of 0.5 MMBtu per hour, exhausting to the ambient air;

(ii) One (1) natural gas-fired lead melting pot, identified as 10088, with a maximum melting capacity of 500 pounds and a maximum heat input rate of 0.1 MMBtu per hour, exhausting to the ambient air;

(h) One (1) hardware assembly process, with a maximum capacity of 8.25 batteries per hour.

(i) Five (5) natural gas-fired, infra-red heaters, identified as HU1 through HU5, each with a maximum heat input rate of 0.075 MMBtu per hour, exhausting to the ambient air;

(j) Two (2) natural gas-fired furnace air make-up units, identified as HU6 and HU7, each with a maximum heat input rate of 0.6 MMBtu per hour, exhausting to the ambient air;

(k) Five (5) natural gas-fired warehouse furnaces, identified as HU8 through HU13, each with a maximum heat input rate of 0.2 MMBtu per hour, exhausting to the ambient air;

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

New Emission Units and Pollution Control Equipment Receiving Prior Approval

There are no new construction activities included in this permit.

Existing Approvals

The source has constructed or has been operating under the following previous approvals:

(a) Exemption 169-9763-00049, issued on March 2, 1999.

All terms and conditions of previous permits issued pursuant to permitting programs have been either incorporated as originally stated, revised, or deleted by this permit. All previous permits are superseded by this permit.

All conditions from previous approvals were incorporated into this permit except the following:

(a) The maximum capacity of the small parts casting process was changed in this permit. In the previous exemption the maximum capacity of the small parts casting process was listed as 417 pounds per hour of hard lead. Based on the stack test conducted in October 1997 the maximum capacity should be 12.5 pounds per hour. This resulted in changes to the description and the particulate emission limitations for manufacturing processes.

(b) Condition 1: Some of the requirements in 40 CFR 60, Subpart KK were changed in this permit. This New Source Performance Standard was amended on October 17, 2000, therefore, some of the requirements have been updated to reflect this change. Also, some of the requirements listed in the exemption pertained to units that the source does not have, therefore, those requirements have been removed.

Air Pollution Control Justification as an Integral Part of the Process

The company has submitted the following justification such that baghouses BH-1 and BH-2 be considered as an integral part of the bulk lead oxide unloading process:

(a) The lead oxide is pneumatically conveyed from trucks to the two silos. Without baghouses BH-1 and BH-2 in place to filter the exhaust air, the source would lose 50 to 60 percent of the lead oxide as it is being blown into the silos. The source uses approximately 5,200,000 pounds of lead oxide per year. The cost of lead oxide averages $0.28 per pound. Without baghouses BH-1 and BH-2 in place the source would lose approximately $728,000 worth of lead oxide per year. The total cost for operating the two baghouses is approximately $7,400 per year. Therefore, the baghouses BH-1 and BH-2 have an overwhelming positive net economic effect and should be considered integral.

IDEM, OAQ has evaluated the justifications and agreed that the baghouses will be considered as an integral part of the bulk lead oxide unloading process. Therefore, the permitting level will be determined using the potential to emit after the baghouses, for this process. Operating conditions in the proposed permit will specify that these baghouses shall operate at all times when the bulk lead oxide unloading process is in operation. Note, all other baghouses are not considered integral to the process.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
S-1	grid casting	23.5	1.54	3282	169
S-2	small parts casting	17.0	0.66	174	259
S-3	furnace	18.0	0.50	819	100
S-4	furnace	18.0	0.50	819	100
S-5	furnace	18.0	0.50	819	100
S-6	furnace	18.0	0.50	819	100
S-7	furnace	18.0	0.50	819	100

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on August 9, 1999, with additional information received on July 17, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations, pages 1 through 18.

Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential To Emit (tons/year)
PM	0.36
PM-10	0.36
SO_2	--
VOC	0.2
CO	3.1
NO_x	3.7

HAP's	Potential To Emit (tons/year)
Lead	0.32
TOTAL	0.32

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of criteria pollutants is less than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

(b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of criteria pollutants is less than 25 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-6.1.

(c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of lead is greater than the level listed in 326 IAC 2-1.1-3(d)(1), therefore, the source is subject to the provisions of 326 IAC 2-5.5.

(d) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

County Attainment Status

The source is located in Wabash County.

Pollutant	Status
PM-10	Attainment
SO_2	Attainment
NO_2	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Wabash County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Wabash County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

(a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

This status is based on all the air approvals issued to the source.

Federal Rule Applicability

(a) Pursuant to 326 IAC 12, New Source Performance Standard (40 CFR 60.370-60.374, Subpart KK), the following conditions shall apply:

(1) The Permittee shall not cause to be discharged into the atmosphere:

(A) From the grid casting processes, identified as 10006, 10007, 10008, and 10088, any gases that contain lead in excess of 0.40 milligram of lead per dry standard cubic meter of exhaust (0.000175 gr/dscf);

(B) From the paste mixing process exhausting to stack DC2, the bulk lead oxide unloading process exhausting to stack DC2, and the plate drying oven identified as 10064, any gases that contain in excess of 1.00 milligram of lead per dry standard cubic meter of exhaust (0.000437 gr/dscf). The paste mixing process includes lead oxide storage, conveying, weighing, metering and charging operations; paste blending, handling, and cooling operations, and plate pasting, takeoff, coding, and drying operations;

(C) From the 3-step cell assembly process that exhausts to stack DC1 any gases that contain in excess of 1.00 milligram of lead per dry standard cubic meter of exhaust (0.000437 gr/dscf);

(2) When two or more facilities at the same plant (except the lead oxide manufacturing facility) are ducted to a common control device, an equivalent standard for the total exhaust from the commonly controlled facilities shall be determined as follows:

$$S_e = \sum_{a=1}^{N} S_a \, (Qsd_a/Qsd_T)$$

Where:

S_e = is the equivalent standard for the total exhaust stream.
S_a = is the actual standard for each exhaust stream ducted to the control device.
N = is the total number of exhaust streams ducted to the control device.
Qsd_a = is the dry standard volumetric flow rate of the effluent gas stream from each facility ducted to the control device.
Qsd_T = is the total dry standard volumetric flow rate of all effluent gas streams ducted to the control device.

(3) The Permittee shall install, calibrate, maintain, and operate a monitoring device that measures and records the pressure drop across the cartridge style dust collector and HEPA filter system at least once per operating shift. The monitoring device shall have an accuracy of plus or minus 5 percent over its operating range.

(4) In conducting the performance tests required by this NSPS, the Permittee shall use as reference methods and procedures the test methods in appendix A of 40 CFR Part 60.

(5) The Permittee shall determine compliance with the lead standards in (a)(1), by using Method 12 to determine the lead concentration and, if applicable, the volumetric flow rate (Qsd_a) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf). The Permittee shall perform testing within 180 days of issuance of this permit. This test shall be repeated at least once every two and half (2.5) years from the date of the last valid compliance demonstration.

(6) Method 9 and the procedures in 40 CFR Part 60.11 shall be used to determine opacity. The opacity numbers shall be rounded off to the nearest whole percentage.

(b) This source is not subject to the requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60, Subpart R) (Standards of Performance for Primary Lead Smelters) because this source does not produce lead from lead sulfide ore concentrates through the use of pyrometallurgical techniques. The source uses lead oxide to make batteries.

(c) This source is not subject to the requirements of New Source Performance Standard 326 IAC 12, (40 CFR 60, Subpart L) (Standards of Performance for Secondary Lead Smelters), because this source does not produce lead from leadbearing scrap material by smelting to the metallic form. The source uses lead oxide to make batteries.

(d) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is located in Wabash County and the potential to emit CO, VOC, NOx, PM_{10}, and SO_2 is less than one hundred (100) tons per year and the potential to emit lead is less than five (5) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of the lead battery manufacturing facility will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

(a) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the bulk lead oxide unloading process shall not exceed 34.5 pounds per hour when operating at a process weight rate of 48,000 pounds per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

The baghouses shall be in operation at all times the bulk lead oxide unloading process is in operation as they are considered integral to the process, as such the potential emissions are 0.0006 pounds per hour, therefore, the source is in compliance with the process weight rule.

(b) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the grid casting process shall not exceed 4.4 pounds per hour when operating at a process weight rate of 2,240 pounds per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

The maximum potential emissions for the grid casting process are 0.01 pounds per hour. Therefore, the source is in compliance with the process weight rule.

(c) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the paste mixing, flash dryer, and positive plate wrapping processes shall not exceed 12.1 pounds per hour when operating at a process weight rate of 10,000 pounds per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

The maximum potential emissions for the paste mixing, flash dryer, and positive plate wrapping processes are 0.012 pounds per hour, therefore the source is in compliance with the process weight rule.

(d) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the three-step cell assembly process shall not exceed 7.6 pounds per hour when operating at a process weight rate of 5,000 pounds per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

The maximum potential emissions for the three-step cell assembly process are 0.7 pounds per hour. Therefore, the source is in compliance with the process weight rule.

(e) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable PM emission rate from the small parts casting process shall not exceed 0.14 pounds per hour when operating at a process weight rate of 12.5 pounds per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

The maximum potential emissions for the small parts casting process are 0.004 pounds per hour. Therefore, the source is in compliance with the process weight rule.

According to the October 1997 stack test report, the grid coating operation and the small parts casting operation operated at 2,240 pounds per hour and the small parts casting operation only operated at 12.5 pounds per hour. These rates shall be considered the source's maximum allowable operating rates until additional stack tests are performed that demonstrate compliance with 40 CFR 60, Subpart KK at higher operating rates.

Testing Requirements

Under IDEM, OAQ guidelines, lead sources should be tested every two and a half years in order to demonstrate compliance with applicable lead emissions standards. Bulldog Battery last conducted a performance test for lead emissions in October 1997 as required under 40 CFR 60, Subpart KK. This proposed permit requires the source conduct additional testing once every two and a half years, with the first test performed within 180 days of issuance of this permit.

Conclusion

The operation of this lead battery manufacturing facility shall be subject to the conditions of the attached proposed Registration 169-11223-00049.

Appendix A: Emissions Calculations
Lead Emissions
from Battery Production

Company Name: Bulldog Battery Corporation
Address City IN Zip: Wabash, IN
Permit No: 169-11223-00049
Reviewer: ERG/ARB
Date: 09/27/2002

Operation	Maximum Capacity of Lead Oxide Processed (lb/hr)	Battery Pb content (lb/battery)	Emission Factor		Controlled Emissions (tons/year)	Estimated Control Eff. (%)	Uncontrolled Emissions (tons/year)
Grid Casting	2,240	na	0.00261	a	**0.0128**	**N/A - NO CONTROL**	0.0128
Small Parts Casting	13	na	0.00688	a	**0.0002**	**N/A - NO CONTROL**	0.0002
Bulk PbO Unloading (PbO Mill)	48,000	1500	0.12	b	**0.0168**	**N/A - INTEGRAL**	0.0168
Paste Mixing	10,000	1500	2.49	c	7.2708E-06	99.99	**0.0727**
3-Step Processing	5,000	1500	14.6	c	2.1316E-05	99.99	**0.2132**
Total					**0.0298**		**0.3157**

a- Units of lb/ton Pb processed. These **UN**CONTROLLED emission factors were derived from actual stack test data conducted October, 1997. **There are no controls on these stacks.**

b- Units of lb/1000 batteries produced. This CONTROLLED emission factor is from AP-42, 5th Ed. Table 12.15-2. The control is part of the pnuematic conveyance system and is integral to the process.

c- Units of lb/1000 batteries produced. These UNcontrolled emission factors are from AP-42, 5th Ed. Table 12.15-2.

Controlled Emissions = Lead Processed (lb Pb/hr) x emission factor (lb Pb emitted/ton Pb processed) x 8760 hr/yr x 1/2000 ton/lb x 1/2000 ton/lb
OR
Controlled Emissions = Lead Processed (lb Pb/hr) x Battery lead content (battery/lb Pb) x emission factor (lb Pb emitted/1000 batteries) x 8760 hr/yr x 1/2000 ton/lb x 1/1000 batteries
OR
Controlled Emissions = Uncontrolled emissions x (1- control efficiency/100)

Uncontrolled Emissions = Controlled Emissions x (1/(1-control efficiency/100))
OR
Uncontrolled Emissions = Lead Processed (lb Pb/hr) x Battery lead content (battery/lb Pb) x emission factor (lb Pb emitted/1000 batteries) x 8760 hr/yr x 1/2000 ton/lb x 1/1000 batteries

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10006

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
1.8	15.8

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.1	0.1	0.0	0.8	0.0	0.7

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10006
HAPs Emissions

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.656E-05	9.461E-06	5.913E-04	1.419E-02	2.681E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	3.942E-06	8.672E-06	1.104E-05	2.996E-06	1.656E-05

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10007

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
1.8	15.8

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.1	0.1	0.0	0.8	0.0	0.7

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10007
HAPs Emissions

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.656E-05	9.461E-06	5.913E-04	1.419E-02	2.681E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	3.942E-06	8.672E-06	1.104E-05	2.996E-06	1.656E-05

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10008

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
0.5	4.4

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.2	0.0	0.2

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10008
HAPs Emissions

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.599E-06	2.628E-06	1.643E-04	3.942E-03	7.446E-06

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.095E-06	2.409E-06	3.066E-06	8.322E-07	4.599E-06

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10064

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
1.6	14.0

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.1	0.1	0.0	0.7	0.0	0.6

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10064
HAPs Emissions

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.472E-05	8.410E-06	5.256E-04	1.261E-02	2.383E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	3.504E-06	7.709E-06	9.811E-06	2.663E-06	1.472E-05

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10088

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
0.1	0.9

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.0	0.0	0.0

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit #10088
HAPs Emissions

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	9.198E-07	5.256E-07	3.285E-05	7.884E-04	1.489E-06

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	2.190E-07	4.818E-07	6.132E-07	1.664E-07	9.198E-07

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit: HU 1-5

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr
0.4	(5 @ 0.075/EA)	3.3

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.2	0.0	0.1

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit: HU 1-5
HAPs Emissions

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	3.449E-06	1.971E-06	1.232E-04	2.957E-03	5.585E-06

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	8.213E-07	1.807E-06	2.300E-06	6.242E-07	3.449E-06

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit: HU 6-7

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr
1.2	2 @ 0.6 ea	10.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.5	0.0	0.4

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit: HU 6-7
HAPs Emissions

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.104E-05	6.307E-06	3.942E-04	9.461E-03	1.787E-05

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	2.628E-06	5.782E-06	7.358E-06	1.997E-06	1.104E-05

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit: HU 8-13

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr
1.0	1 @ 0.2 ea	8.8

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.4	0.0	0.4

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Unit: HU 8-13
HAPs Emissions

Company Name: **Bulldog Battery Corporation**
Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**
CP: **169-11223-00049**
Plt ID: **169-00049**
Reviewer: ERG/AR
Date: July 25, 2001

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	9.198E-06	5.256E-06	3.285E-04	7.884E-03	1.489E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	2.190E-06	4.818E-06	6.132E-06	1.664E-06	9.198E-06

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations

Summary of Emission Calculations in Tons/year

Company Name: **Bulldog Battery Corporation**

Address City IN Zip: **387 S. Wabash Street, Wabash, Indiana46992**

CP: **169-11223-00049**

Plt ID: **169-00049**

Reviewer: ERG/AR

Date: July 25, 2001

Summary of Emissions in Tons/Year

	PM*	PM10*	SO2	NOx	VOC	CO
10006	0.1	0.1	0.0	0.8	0.0	0.7
10007	0.1	0.1	0.0	0.8	0.0	0.7
10008	0.0	0.0	0.0	0.2	0.0	0.2
10088	0.0	0.0	0.0	0.0	0.0	0.0
10064	0.1	0.1	0.0	0.7	0.0	0.6
W Furnaces	0.0	0.0	0.0	0.4	0.0	0.4
IR Heaters	0.0	0.0	0.0	0.2	0.0	0.1
Furnaces	0.0	0.0	0.0	0.5	0.0	0.4
Total	**0.3**	**0.3**	**0.0**	**3.7**	**0.2**	**3.1**

Tons/Year

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	
10006	1.656E-05	9.461E-06	5.913E-04	1.419E-02	2.681E-05	
10007	1.656E-05	9.461E-06	5.913E-04	1.419E-02	2.681E-05	
10008	4.599E-06	2.628E-06	1.643E-04	3.942E-03	7.446E-06	
10088	9.198E-07	5.256E-07	3.285E-05	7.884E-04	1.489E-06	
10064	1.472E-05	8.410E-06	5.256E-04	1.261E-02	2.383E-05	
W Furnaces	9.198E-06	5.256E-06	3.285E-04	7.884E-03	1.489E-05	
IR Heaters	3.449E-06	1.971E-06	1.232E-04	2.957E-03	5.585E-06	
Furnaces	1.104E-05	6.307E-06	3.942E-04	9.461E-03	1.787E-05	
Total	**7.703E-05**	**4.402E-05**	**2.751E-03**	**6.603E-02**	**1.247E-04**	6.903E-02

	Lead	Cadmium	Chromium	Manganese	Nickel	
10006	3.942E-06	8.672E-06	1.104E-05	2.996E-06	1.656E-05	
10007	3.942E-06	8.672E-06	1.104E-05	2.996E-06	1.656E-05	
10008	1.095E-06	2.409E-06	3.066E-06	8.322E-07	4.599E-06	
10088	2.190E-07	4.818E-07	6.132E-07	1.664E-07	9.198E-07	
10064	3.504E-06	7.709E-06	9.811E-06	2.663E-06	1.472E-05	
W Furnaces	2.190E-06	4.818E-06	6.132E-06	1.664E-06	9.198E-06	
IR Heaters	8.213E-07	1.807E-06	2.300E-06	6.242E-07	3.449E-06	
Furnaces	2.628E-06	5.782E-06	7.358E-06	1.997E-06	1.104E-05	
Total	**1.834E-05**	**4.035E-05**	**5.136E-05**	**1.394E-05**	**7.703E-05**	2.010E-04

Total HAPs = **1.336E-01 tons/year**